

# COMMONWEALTH OF AUSTRALIA

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# weekender

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## mythconceptions

## Another wavelength

**Dr Karl S. Kruszelnicki** tackles life's myths, curiosities and absurdities.

● Tsunamis are the *Tyrannosaurus rex* of waves. They can move as fast as a jet and they've killed a few hundred thousand people in the past few centuries. But don't call them tidal waves. Despite what many think, they're not one and the same.

To make a tsunami, you need an earthquake to suddenly move a chunk of sea floor about half the size of Tasmania up or down a few metres. An underwater landslide or underwater volcanic eruption will also do it.

The wave starts spreading out in all directions. In the open sea, even though the wave peaks of a tsunami might be a metre high, they'd be several hundred kilometres apart. You wouldn't even notice a tsunami as it rushed past you at 700 kilometres an hour, because it would take about half an hour to move your boat one metre up, and then down again.

But as the tsunami comes onto the shore, the water at the front slows down, while the water at the back begins to pile up to astonishing heights – and that's when the damage happens. (In fact, the word tsunami comes from the Japanese: *tsu* means "harbour" and *nami* means "wave".) Buildings are demolished, bridges are splintered like matches, parking meters bent like spaghetti, and people are crushed to death or washed out to sea.

A tsunami may also be generated by a huge rock or a comet hitting the ocean. Professor Edward Bryant, a physical geographer from the University of Wollongong, says large sections of the east coast of Australia have been hit by tsunamis. About 500 years ago, he says, a comet hit the ocean near New

Zealand and, soon after, a tsunami was stacking up 130 metres above sea level near Jervis Bay. It tossed boulders, weighing hundreds of tonnes, 32 metres above sea level as if they were tiny pebbles.

A tidal wave, according to Bryant and many oceanographers, geologists and physicists, is very different. It is just what it says it is – a wave that comes and goes with the tides, caused not by an earthquake but by the gravitational pull of the sun and the moon. It does not cause the massive destruction of a tsunami.

